

2020

RANK *Improvement* **WORKBOOK**



**Answer key and Hint of
Objective & Conventional Questions**

Civil Engineering

Construction Practice, Planning & Management



MADE EASY
Publications

1

Project Management and Network Technique

LEVEL 1 Objective Questions

1. (c)
2. (c)
3. (d)
4. (b)
5. (d)
6. (3)
7. (d)
8. (b)
9. (c)
10. (c)
11. (a)
12. (b)
13. (c)

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LEVEL 2 Objective Questions

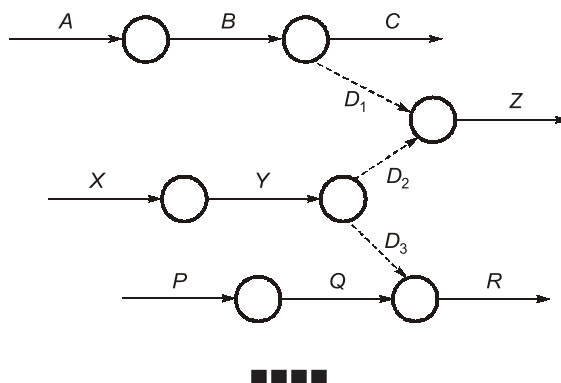
14. (b)
15. (a)
16. (b)
17. (c)
18. (c)
19. (2.92)
20. (b)
21. (a)
22. (a)
23. (d)
24. (d)
25. (b)

LEVEL 3 Conventional Questions

Solution : 5

Activity	A	B	C	X	Y	Z	P	Q	R
Immediate Predecessor Activities	—	A	B	—	X	Y, B	—	P	Y, B, Q
Immediate Successor Activities	B	C, Z, R	—	Y	Z, R	—	Q	R	—

There is error in network as dummies drawn are incorrect. This error may be called as redundant error.



LEVEL 1 Objective Questions

1. (d)
2. (c)
3. (a)
4. (c)
5. (a)
6. (51)
7. (c)
8. (a)
9. (b)
10. (d)
11. (a)
12. (b)

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LEVEL 2 Objective Questions

13. (a)
14. (a)
15. (b)
16. (a)
17. (a)
18. (32)
19. (1)
20. (c)
21. (a)
22. (c)

LEVEL 3 Conventional Questions

Solution : 1

The calculations are tabulated below:

Activity	Duration	EST	EFT	LFT	LST	F_T	Remarks
A	4	0	4	4	0	0	Critical
B	2	4	6	10	8	4	
C	2	6	8	12	10	4	
D	6	12	18	18	12	0	Critical
E	6	18	24	24	18	0	Critical
F	1	4	5	9	8	4	
G	1	5	6	16	15	10	
H	2	12	14	18	16	4	
K	5	4	9	9	4	0	Critical
L	3	9	12	12	9	0	Critical

Thus the critical path will be $A - K - L - D - E$.

In other words in terms of events $1 - 2 - 4 - 6 - 8 - 9 - 10$ is the critical path.

Solution : 2

(50%, 75%, 15.6%, 13.19%, 84.4%)

Solution : 3

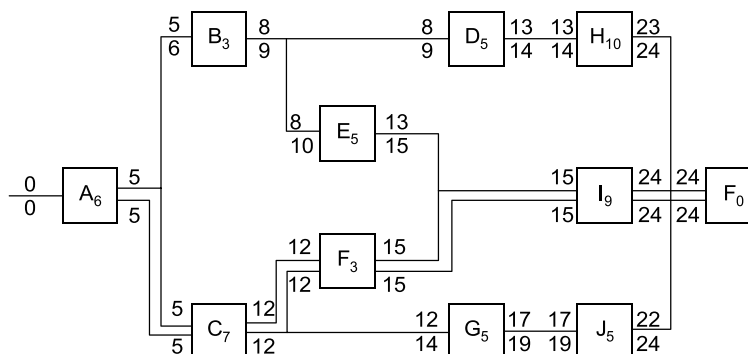
1-2-3-4-6-7-9-11, 4.07 weeks, 1.23, 43.1 weeks

Solution : 4

96.312%

Solution : 7

A-O-N diagram or the given A-O-A diagram is shown in figure.



F_0 = End activity of zero duration
Critical path = A-C-F-I, project duration = 24 units

EST, EFT, LST & LFT values have been indicated on the A-O-N diagram, however, the values are tabulated as below:

Activity	Duration	EST	EFT	LST	LFT	TF	Remarks
A	5	0	5	0	5	0	Critical
B	3	5	8	6	9	1	
C	7	5	12	5	12	0	Critical
D	5	8	13	9	14	1	
E	5	8	13	10	15	2	
F	3	12	15	12	15	0	Critical
G	5	12	17	14	19	2	
H	10	13	23	14	24	1	
I	9	15	24	15	24	0	Critical
J	5	17	22	19	22	2	
F ₀	0	24	24	24	24	—	

Solution : 8

64.94 weeks

Solution : 10

18 days, 17 days

■■■■■

3

Crashing, Resource Allocation, Updating and Engineering Economy

LEVEL 1 Objective Questions

1. (a)
2. (d)
3. (d)
4. (210)
5. (b)
6. (a)
7. (d)
8. (a)
9. (c)
10. (a)
11. (c)
12. (b)
13. (b)

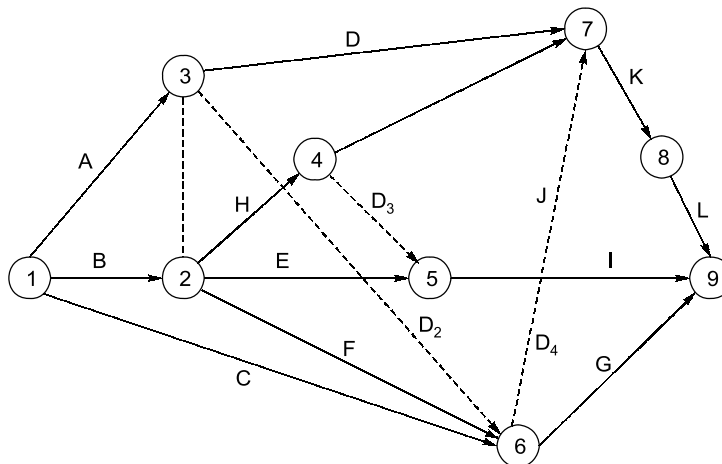
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LEVEL 2 Objective Questions

14. (d)
15. (d)
16. (d)
17. (0.185)
18. (24150)
19. (a)
20. (c)
21. (d)
22. (a)
23. (c)
24. (a)
25. (d)
26. (c)

LEVEL 3 Conventional Questions**Solution : 1**

93.93 cum/hr

Solution : 3**Solution : 5**

$$(NPV)_B > (NPV)_A$$

$$(BCR)_B > (BCR)_A$$

Solution : 6

Scheme I is the most economical.

Solution : 7

$$L = 49.33 \text{ m}$$

Solution : 8

Break even point = 3000 unit

Profit = ₹ 40000

Margin of safety = 62.5%

$$\theta = 33.7^\circ$$

■■■■

4

Concreting Equipments

LEVEL 1 Objective Questions

1. (d)
2. (d)
3. (b)
4. (b)
5. (a)
6. (a)
7. (a)
8. (22.5×10^{-3})
9. (c)
10. (d)
11. (c)
12. (c)
13. (a)

LEVEL 2 Objective Questions

14. (d)
15. (b)

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16. (d)
17. (d)
18. (b)
19. (b)
20. (a)
21. (d)
22. (b)
23. (a)
24. (b)
25. (c)
26. (d)

LEVEL 3 Conventional Questions

Solution : 5

No possibility of type slippage, 38.04 m^3 ,
3 trucks

Solution : 8

17.25%

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